

CS 411 Analysis of Algorithms, Fall 2025
In-Class Worksheet 1: The Master Theorem

1. Algorithm A is given a list as input. It uses a Divide and Conquer strategy. It splits its input in half (or nearly so), and handles each part with a recursive call. It also does other work requiring constant time.

Use the Master Theorem to determine the order of Algorithm A . As a guide through this process, answer each of the following.

$b =$ _____; $a =$ _____.

$f(n)$ is $\Theta(n^d)$. $d =$ _____.

Compare a and b^d . Circle one comparison operator: a $<$ $=$ $>$ b^d .

Which case of the Master Theorem? Circle one: 1 2 3

Conclusion. The order of Algorithm A is (simplify!): _____.